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National Assessment on the Status of Implementation of Clinical Pharmacy Services at Public Hospitals in Ethiopia

Pharmaceuticals Fund and Supply Agency (PFSA) in collaboration with
Systems for Improved Access to Pharmaceuticals and Service (USAID/SIAPS)

February 2016
Addis Ababa, Ethiopia

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About SIAPS

The Systems for Improved Access to Pharmaceuticals and Services Program (SIAPS) strives to build capacity within developing countries to effectively manage all aspects of pharmaceutical systems and services. SIAPS focuses on improving governance in the pharmaceutical sector, strengthening pharmaceutical management systems and financing mechanisms, containing antimicrobial resistance, and enhancing access to and appropriate use of medicines.

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ACRONYMS AND ABBREVIATIONS

ADR	adverse drug reaction
CCO	Chief Clinical Officer
CEO	Chief Executive Officer
CPS	clinical pharmacy services
DTC	drug and therapeutics committee
DTP	drug therapy problem
EC	Ethiopian Calendar
FMHACA	Food, Medicine and Health Care Administration and Control Authority
EHRIG	Ethiopian Hospital Reform Implementation Guidelines
ESA	Ethiopian Standards Agency
FMOH	Federal Ministry of Health
HIV	human immunodeficiency virus
IV	Intravenous
MDT	Multidisciplinary Team
PFSA	Pharmaceuticals Fund and Supply Agency
RHB	Regional Health Bureau
RMU	rational medicine use
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
SNNP	South Nations, Nationalities and Peoples
SOP	standard operating procedure
TDM	therapeutic drug monitoring
USAID	US Agency for International Development

FOREWORD

Clinical pharmacy is one of the proven strategies for promoting the rational use of medicines. Hence, the involvement of pharmacists in direct patient care settings is a key intervention to optimize outcomes of drug therapy, thereby improving quality of patient care. In Ethiopia, various efforts have been made to initiate clinical pharmacy services (CPS) in public health facilities. These efforts include development and implementation of standards and guidelines, initiation of postgraduate programs in clinical pharmacy, changes in undergraduate pharmacy curriculum, in-service training and facility-level supports, and development and implementation of standard operating procedures. Pharmaceuticals Fund and Supply Agency (PFSA), with support from the US Agency for International Development (USAID) through the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program, has been coordinating these efforts to implement CPS in Ethiopian hospitals. PFSA's coordination role was instrumental in the provision of short-term in-service training on clinical pharmacy, deployment of new graduates to support the program, development and distribution of documentation and reporting forms, and conducting site-level mentoring in collaboration with USAID/SIAPS, Regional Health Bureaus, and universities.

CPS have been flourishing in the country for the last three years. Routine follow-up and supportive supervision reports as well as CPS reports from health facilities indicate CPS are well established and producing commendable results. However, a need existed to comprehensively assess the status of implementation of the services, its challenges and opportunities so as to guide further action from concerned governmental and non-governmental bodies. This assessment was designed to address such needs. I believe the assessment results provide valuable information for taking programmatic actions that will be helpful in improving and scaling up CPS in the country. Universities will also use the results to customize their curriculum to respond to the practical needs of graduates.

Finally, I would like to acknowledge USAID/SIAPS, all stakeholders, and their respective staffs for their contributions to the success of this national assessment.

Meskele Lera
Director General, Pharmaceuticals Fund and Supply Agency

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EXECUTIVE SUMMARY

Background

Clinical pharmacy is an area of practice in which pharmacists provide direct patient care that optimizes medication therapy and promotes health, wellness, and disease prevention. Trends in pharmacy practice elsewhere indicate that a gradual shift has taken place from product-focused to patient-oriented practice. In Ethiopia various efforts have been made to initiate clinical pharmacy services (CPS) in public health facilities. Some of these efforts include launching a postgraduate clinical pharmacy program, changing the undergraduate pharmacy curriculum, developing standards and guidelines, and providing in-service trainings. These efforts have led to initiation of CPS in a number of hospitals. The status of implementation of this service, its outcomes, challenges, and opportunities were assessed.

Objective

The assessment was conducted with the objective of evaluating the status of CPS implementation at selected public hospitals in Ethiopia to guide future government interventions to improve and sustain CPS.

Methods

This was a descriptive cross-sectional study that applied both quantitative and qualitative data collection methods. The study was conducted April 6–17, 2015, on a purposively selected group of 43 hospitals from five regional states and two city administrations of a total 65 hospitals that took part in the in-service training program. The hospitals were selected based on two criteria: participation in clinical pharmacy in-service training and their geographical accessibility. The data collection tool was designed to capture information that is essential to determine the overall successes and challenges in CPS implementation.

Results

Data were collected from 43 (66.2%) hospitals that took part in the in-service training. Forty-one (95.3%) hospitals had started providing ward-based CPS. Seventeen (39.5%) hospitals had assigned pharmacists in wards on a full-time basis. In 23 (56.1%) hospitals, pharmacists attended both morning sessions and ward rounds. In 15 (36.6%) hospitals, all eligible patients in pharmacist-assigned wards received the service. Twenty-nine (67.4%) hospitals had conducted an awareness creation program for the hospital staff. Pharmacist job descriptions were found in only 18 (41.9%) hospitals. Twenty-nine (67.4%) pharmacy departments had an annual plan of action on CPS for the 2007 Ethiopian Calendar (July 2014–June 2015). Clinical pharmacy interventions were being documented in 36 (87.8%) hospitals. Document reviews showed that a total of 8,257 drug therapy problems (DTPs) were identified since initiation of the service in August 2012. Pharmacists were able to intervene on 87% of the 8,257 DTPs with an 88% acceptance rate of their recommendations by the Multidisciplinary Team. Thirty-seven of 38 chief executive officers (97.4%), 31 of 33 medical directors (93.9%), 37 of 39 ward physicians (95%), and 40 (100%) nurses interviewed believed CPS

were crucial for provision of quality patient care. Likewise, 40 pharmacists of the 42 (95%) interviewed during the assessment said they got a favorable response from other professionals about their contributions in patient care. However, 26 (62%) of the 42 pharmacists were dissatisfied with their job. Moreover, of 38 respondents, 33 (86.8%) mentioned unattractive incentive packages as the source of job dissatisfaction. Regarding the undergraduate curriculum, of 42 pharmacists interviewed, 39 (93%) pharmacists said it did not adequately prepare them for their actual work requirements.

Conclusion and Recommendations

Clinical pharmacy services have started in a sizable number of hospitals and are registering positive outcomes in improving quality of care and treatment outcomes. The number of DTPs identified and resolved at these hospitals indicates the immense potential of CPS in the recognition and prevention or mitigation of medication-related adverse events, thereby avoiding unnecessary patient harm, prolonged or repeat hospitalization, and cost escalations. CPS have received wide recognition and acceptance by other health care providers. However, the practice lacks uniformity across hospitals. Hospitals need to adopt job descriptions, guidelines, and standard operating procedures to promote uniformity of service delivery and accountability. Documentation and reporting is also an area that needs closer follow-up. Ways should be sought to improve incentive packages for pharmacists. The undergraduate curriculum needs to be reviewed to respond to the everyday challenges faced by pharmacists. The Federal Ministry of Health, Regional Health Bureaus, and Pharmaceuticals Fund and Supply Agency, as well as hospital management, need to closely follow up CPS and provide managerial, technical, and material support.

INTRODUCTION

Background

Rational medicine use (RMU) involves providing patients with medications appropriate to their clinical needs, in doses that meet their individual requirements, for an adequate period of time, and at the lowest cost to them and their community. However, existing practices in the Ethiopian health system indicate the presence of various behaviors that undermine RMU. According to the World Health Organization, more than 50% of all medicines are prescribed, dispensed, or sold inappropriately, while 50% of patients fail to take them correctly (1). In Ethiopia common types of irrational medicine use include overprescribing of antibiotics in hospitals (58%), use of antibiotic in non-pneumonia acute respiratory tract illness (61%), low level of patient knowledge on correct use of dispensed medicines (68%), and inadequate labeling practices (43%) (2,3). In response to these issues, various interventions were implemented at health facilities. Some of the interventions to promote RMU include development and implementation of guidelines, improvement in pharmacy curriculum, establishment and strengthening of drug and therapeutics committees (DTCs), strengthening adverse event monitoring activities at health facilities, and developing and enforcing health facility–specific medicine lists.

Effective implementation of these interventions requires application of clinical pharmacy knowledge and skills. Clinical pharmacy is an area of practice in which patients obtain care that optimizes medication therapy and promotes health, wellness, and disease prevention (4). The practice of clinical pharmacy is founded on two concepts: pharmaceutical care and medicine management (5). According to Hepler and Strand, pharmaceutical care is the responsible provision of pharmacotherapy for the purpose of achieving definite outcomes that improve or maintain a patient's quality of life (6). Medicine management is a broader concept that is concerned with the whole process of supply management and practices of prescribing, administration, and monitoring of therapy to optimize the contribution of medicines to health outcomes (5).

Trends in pharmacy practice elsewhere indicate that a gradual shift has occurred from product-focused to patient-oriented practice (7–9). As a result, the pharmacist is now rightly considered a provider of pharmaceutical care, rather than being considered only a supplier of medicines as was the case some decades ago. The education of pharmacists has also advanced to match this evolving paradigm shift in the practice of pharmacy.

In Ethiopia, various efforts have been made to initiate the service in public health facilities. Standards and guidelines have been endorsed and are being implemented in hospitals. The *Ethiopian Hospital Reform Implementation Guidelines* by the Federal Ministry of Health (FMOH) and the health facilities minimum regulatory standards of the Ethiopian Standards Authority and Ethiopian Food, Medicine and Health Care Administration and Control Authority (FMHACA) are two of such documents that require clinical pharmacy to be one of the services provided in hospital settings (10,11). Universities have also launched postgraduate clinical pharmacy programs and changed their undergraduate pharmacy curriculum to be patient focused by adding more credits of pharmacotherapy courses and one year of clerkship in direct patient care settings. Three successive batches of pharmacists who passed through the new patient-oriented curriculum have graduated and deployed to public

hospitals since 2005 Ethiopian Calendar (EC). In the meantime, eight rounds of one-month, practice-based in-service trainings were organized by Pharmaceuticals Fund and Supply Agency (PFSA) and the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program of the US Agency for International Development (USAID) at public universities between May 2012 and September 2014 to fill the knowledge and skill gaps of practicing pharmacists trained in the previous curriculum and enable them initiate clinical pharmacy services (CPS).

As a result of these efforts and other advocacy works, many hospitals are currently providing CPS. In addition, coordinated technical support and mentoring has been provided by Regional Health Bureaus (RHBs), PFSA, universities, and USAID/SIAPS to strengthen service provision at hospitals. Documentation and reporting formats were introduced, and monthly reports generated so far show CPS are contributing to the quality of patient care and treatment outcomes.

After implementing clinical pharmacy for about three years, assessing the status of the service, its contributions to patient care, the challenges being encountered, and its opportunities is necessary to produce evidence for shaping the way forward. The information produced will be used by relevant government bodies such as FMOH, FMHACA, PFSA, RHBs, and universities to design more-focused interventions to strengthen CPS and enhance effects on quality of patient care in the years to come. Accordingly, this assessment was carried out by PFSA in collaboration with RHBs and public schools of pharmacy with technical and financial support from USAID/SIAPS.

The assessment was conducted April 6–17, 2015, in 43 hospitals from five regional states and two city administrations of Ethiopia. The assessment team was composed of forecasting and capacity-building officers from PFSA, pharmacy experts from RHBs, university lecturers, and regional technical advisers from USAID/SIAPS. This report summarizes the major finding of the assessment and forwards recommendations.

Country Profile

The Ethiopian government has shown great commitment and made huge investments to improve the country's health system. Consequently, remarkable health gains have been registered (12). The country had been affected by preventable communicable diseases and nutritional disorders (13) that affect the most vulnerable groups of the population, that is, mothers and children. However, the country has made significant progress in realizing the Millennium Development Goals of eradicating extreme poverty and hunger, reducing child mortality, and combating HIV/AIDS, tuberculosis, and malaria (14). Moreover, Ethiopia has achieved a 67% reduction in under-five mortality and a 69% drop in maternal mortality (12). As a result, life expectancy has improved dramatically. According to the 2014 estimates, life expectancy for the total population has reached 60.75 years (male: 58.43 years, female: 63.15 years) (15). In the past two decades, remarkable progress has been made in improving access to primary health care units and hospitals. Accordingly, health center population ratio has shown significant improvement and reached 1: 25,395, and hospital-to-population ratio is estimated at 1: 5,477 by the end of Ethiopian fiscal year 2007 (16).

Rationale of the Assessment

Clinical pharmacy was recently introduced into the Ethiopian health system, and currently it is practiced at more than 65 public hospitals throughout the country. A number of high-level interventions were implemented to introduce, initiate, and strengthen CPS (17). With the support of development partners, the country has invested a lot of efforts and finances for these programs with the expectation of reasonable returns in terms of improvements in quality of patient care, treatment outcomes, and cost reduction, among other results. Hence this assessment aims to assess the implementation status of the service, identify its impacts, and identify challenges to guide future action by relevant policy makers.

Literature Review

The discipline of pharmacy practice has evolved over the past 30 years into a clinical service tailored to pharmaceutical care and has started to become an essential component of the multidisciplinary team (MDT). In many countries, the definition and responsibilities of a hospital pharmacist have changed dramatically, with the focus of practice changing from product oriented to patient-outcome oriented. However, in developing countries, pharmacists and hospitals often face unique challenges, such as shortage of human resources and economic hardships, in embracing these changes (18). In the developed world, hospital pharmacy practice has matured as a clinical service and has transformed itself from mere dispensing to provision of care, advice, and counseling to patients. In such settings, therapeutic drug monitoring (TDM) and nutrition support, bedside rounds, and efficient and safe drug delivery systems have been provided with evolution of critical care pharmacy satellites and other innovative programs (19).

A clinical role for pharmacists has developed in response to the societal need to improve the use of medicines. Medicines in the modern world are getting increasingly sophisticated, thus requiring a careful approach to their use that increases their benefits while decreasing their risks. Clinical pharmacy practice plays a critical role in maintaining this balance of safety and risk. Clinical pharmacy provides this much-needed input to health care by enhancing the knowledge and skills of practitioners to discharge this duty and contribute to the safe, effective, and economic use of medicines (20,21).

Inappropriate use of medicines has severe consequences that can lead to unnecessary and avoidable morbidity and mortality. A study by Lesar, Briceland, and Stein shows that a total of 2,103 clinically important medication errors were detected by pharmacists over a one-year period in a teaching hospital. The study further reveals that medication errors related to incorrect dose were estimated at 58%, failure to modify therapy in accordance with hepatic or renal function at 14%, failure to account for patients' history of hypersensitivity at 12%, use of wrong drug name or dosage form at 11%, and incorrect calculation at 11% (22). This study shows the significant role of CPS in maximizing treatment outcomes by minimizing patient harm from unsafe use of medicines in patient care settings.

Hospitals elsewhere are embracing clinical pharmacy practice and are benefitting from it. In Pakistan, clinical pharmacists are engaged in such clinical activities as medicine management, regular review of medication records of patients, and a consultancy service provided to registered customers to review their medication and monitoring tests such as blood pressure and glucose on regular basis (23). A study reveals that in Ireland medication

reconciliation services are also provided. Over 97% of patients (involving 59% of medications) experienced a medication change on admission. Over 90% of patients (involving 29% of medications) were identified as warranting clinical pharmacy input to determine whether such changes were intentional or unintentional. There were 447 interventions regarding apparently unintentional discrepancies, a mean of 3.3 per patient. The study also shows that a total of 227 (50%) of these interventions were accepted and discrepancies were resolved (24).

Studies in various parts of the world show a growing trend in inclusion of CPS in hospital settings. A study conducted in Australian hospitals reveals that 41% of the pharmacists' time was spent in clinical activities dedicated to the patient, drug information services, training, and education (25). Similar studies done in Australia show that the clinical responsibilities of pharmacists include reviewing patient medication charts, therapeutic monitoring, counseling, adverse drug reaction (ADR) monitoring, and provision of drug information (26). Yet another study shows that hospital pharmacists in Canada executed such tasks as participation in ward rounds, taking admission histories, conducting education for patient groups, participating in clinical drug trial services, and individualizing doses for therapeutic uses of different medications (27). Similar studies undertaken in Germany show that hospital pharmacy services included such activities as pharmacokinetics (TDM and individual patient dose adjustments), drug information and patient counseling services, ward rounds, and involvement in clinical trials (28).

The literature review indicates a wealth of available information about CPS; however, such information is rarely obtained in many African countries. Nevertheless, some experiences exist in South African nations, including Zimbabwe. Reports show that CPS are rendered in hospital settings. Pharmacists in South Africa attend clinical ward rounds, conduct TDM services, and provide patient-oriented services in some hospitals. In Zimbabwe, hospital pharmacists conduct ward rounds and perform some pharmacokinetic activities such as TDM (29).

Implementation of CPS has great advantages in terms of reducing treatment costs and improving patient outcomes. The cost burden of DTPs on the health system is huge. Ernest and Grizzle report that in 2000, the overall cost of morbidity and mortality related to drug therapy was more than USD 177 billion (30). A review of literature by Schumock et al. on the evidence of the economic benefit of CPS from 1996 to 2000 reports that "the body of literature provides continued evidence of the economic benefit of clinical pharmacy services" (31). The same review for the years from 2006 to 2010 concludes that CPS were generally considered cost-effective or provided a good benefit-cost ratio (32).
Gallagher et al. studied the cost-outcome description of clinical pharmacy interventions in a university teaching hospital in Ireland and found total cost avoidance of €708,221. With input costs of €81,942, a net cost-benefit of €626,279 and a cost-benefit ratio of 8.64:1 were achieved (33). *ScienceDaily* on December 23, 2008, reported that "for every dollar spent by hospitals or health systems to provide clinical pharmacy services, $4.81 was saved through lower drug costs, reductions in adverse drug events and medication errors and other savings" (34).

Clinical pharmacy services are very young in the Ethiopian context. In addition to lack of clear policy and strategic directions, the absence of an adequate number of pharmacy personnel qualified in the provision of CPS is prominent. However, some startup initiatives had shown the huge potential the service could offer in improving patient care. In a study

conducted at Jimma University Specialized Hospital, clinical pharmacists in wards had vital roles. In that study, a total of 149 drug-related interventions conducted for 48 patients were documented, among which 133 (89.3%) were clinical pharmacist–initiated interventions and 16 (10.7%) were initiated by other health care professionals. The most frequent DTPs were unnecessary drug therapy, 36 (24.2%); need for additional drug therapy, 34 (22.8%); and noncompliance, 29 (19.5%). The most frequent intervention type was change of dosage or instructions for use, 23 (15.4%). Acceptance rate by physicians was 68.4%. Among the interventions that were rated as clinically significant, 46 (48.9%) and 25 (26.6%) had major and moderate clinical importance, respectively (35).

The literature confirms the fact that implementing CPS in patient care leads to reduced cost, and safe and optimized drug therapy in both developed and resource-limited settings.

OBJECTIVES OF THE ASSESSMENT

The assessment was conducted to address the following key objectives:

- To assess initiation and availability of clinical pharmacy services
- To identify type of CPS provided
- To identify areas for improvement
- To measure the outcomes of the CPS interventions
- To assess acceptance of CPS by other health care professionals
- To measure job satisfaction of staff providing CPS
- To identify opportunities and challenges to the implementation of CPS

METHODS AND MATERIALS

The study was a descriptive cross-sectional study conducted at 43 public hospitals accounting for 66% of the 65 hospitals that took part in the clinical pharmacy in-service training program. The hospitals were selected because of their participation in clinical pharmacy in-service training and their geographical accessibility. Both quantitative and qualitative data collection methods were used. Hospitals were selected from Amhara, Tigray, Oromia, SNNP, and Harari regions and Dire Dawa and Addis Ababa city administrations. The study was conducted April 6–17, 2015.

Data were collected from chief executive officers (CEOs), medical directors, heads of pharmacy, pharmacists, and ward attending physicians and nurses. One professional of each type was requested to provide information in accordance with a predefined checklist (Annex 1).

Data were collected using a questionnaire that was supplemented by an assessment guide (Annex 2). Data were collected by a team of assessors drawn from PFSA, RHBs, universities, and USAID/SIAPS, who were experts in pharmaceutical services and had relevant experiences in data collection. PFSA acted as chair of the team, and SIAPS was the secretary. One day was allotted for data collection at a hospital unless unexpected encounters dictated extension into another day. A letter of support was obtained from PFSA and given to the respective health facilities. On each day, the team started its work by holding a meeting at the CEO's office where the medical director and head of pharmacy were in attendance to explain the objectives and expected outcomes of the visit. The team then gathered data on various thematic areas using a questionnaire designed for the purpose. The data collection team also met at the end of each day to review progress, share challenges, and reflect on weaknesses and strengths.

Data were entered into Statistical Package for Social Sciences version 22 by a team of experts from PFSA and USAID/SIAPS. Data were cleaned and verified, and analysis was conducted using the same software package.

RESULTS AND DISCUSSION

Hospital Profile

The assessment was conducted in a total of 43 hospitals from Amhara, Tigray, Oromia, SNNP, and Harari regional states and Dire Dawa and Addis Ababa city administrations. They accounted for 66.2% of the 65 hospitals that received in-service training. Seven primary, 17 general, and 19 referral or teaching hospitals were assessed. Oromia and Amhara regions contain more than 53% of the hospitals. The regional distribution of the hospitals is summarized in table 1. Twenty-one (49%) of the hospitals had bed capacities between 101 and 200. Hospitals with bed capacities less than 100 represent 25.6% of the total hospitals visited by the assessment teams. The distribution of the hospitals by PFSA regional hubs indicates that Addis Ababa and Mekelle branches serve 8 of the hospitals each, while Dessie and Hawassa branches serve 5 hospitals each. The distribution of hospitals by PFSA hubs is shown in Annex 3.

Table 1. Regional Distribution of Hospitals Covered in the Assessment

Region	Number of hospitals	Percent
Addis Ababa city administration	5	11.6
Diredawa city administration	1	2.3
Amhara regional state	11	25.6
Harari regional state	2	4.7
Oromia regional state	12	27.9
SNNP regional state	4	9.3
Tigray regional state	8	18.6
Total	43	100.0

Note: N = 43 hospitals.

Availability of Clinical Pharmacy Services and Human Resources

Among hospitals included in this study, 41 (95.3%) have started providing ward-based CPS. Two of the hospitals had not started providing CPS because of inadequate workforce and lack of management support. Among the hospitals that had initiated CPS, two hospitals had discontinued CPS for similar reasons as those indicated above and because of lack of commitment of the pharmacy staff. In 15 (36.6%) hospitals that initiated CPS, all patients admitted at wards where pharmacists are assigned, received CPS. However, only 10 of the 41 (24.4%) hospitals said the care is given from admission to discharge. The reasons mentioned in this assessment for not providing care for all eligible patients from admission to discharge was unavailability of the service at nights and weekends (16, 53.3%) and shortage of human resources (14, 46.7%).

Issues such as acceptance by the health care team could be a hindrance if not properly addressed by management. Accordingly, 29 of the 43 (67.4%) hospitals had conducted awareness creation programs for hospital staff about the importance of CPS. One of the factors that affected the implementation of the pharmaceutical care in different European countries was the difference in definition, scope, and awareness of the concept of the practice (36). Hence awareness creation for the health care team, particularly clinicians, is crucial to

facilitate the change process and create champions of change. The trend of the hospitals included in this assessment in this respect was encouraging.

Of the 43 hospitals, 11 (25.6%) had organized experience-sharing events so the clinical pharmacy team might learn best practices from other hospitals. Twenty-three (53.5%) hospitals claimed that management of the hospital followed up clinical pharmacy activities to identify challenges and resolved them timely. The lack of management support in the other hospitals signals the need to strengthen enforcing standards by implementing appropriate monitoring and evaluation parameters. Even though strong monitoring and evaluation is still a challenge, Ethiopia seems to be doing better than other countries in developing relevant standards and guidelines. In Europe, for example, only a few countries have a legal basis for the implementation of pharmaceutical care (36).

The health workforce is one of the key components of health systems strengthening. The addition of pharmacists with patient-oriented training to the existing pharmacy workforce pool is a huge necessity in terms of promoting and instituting pharmaceutical care. Accordingly, the assessment looked into the available workforce for CPS. Most (41, 95.3%) hospitals said they did not have adequate numbers of pharmacists for properly carrying out ward-based clinical pharmacy activities. The assessment team observed that pharmacists had to switch between ward-based and dispensing or supply management activities because of this personnel shortage. Table 2 shows that 25 hospitals (58%) had four to seven pharmacists who could potentially provide CPS. In 15 (35%) hospitals, the same number (four to seven) of pharmacists was providing these services. Moreover, the number of hospitals with full-time assignment of four to seven pharmacists was only 7 (16%). Generally, of a total of 251 available pharmacists, 53% were providing CPS and 24% were engaged in CPS on a full-time basis. Overall, 17 (39.5%) hospitals have assigned one or more pharmacists on a full-time basis. This assessment also shows that more new graduates are working in the wards than pharmacists who received in-service training. This finding triggers a need for more in-depth analysis of the situation to better understand the reasons for such differences. Generally, full-time assignment in the studied hospitals was low. Pharmacists need to be assigned in inpatient wards on a full-time basis if they are required to follow patients from admission to discharge.

The 26 hospitals that did not assign any pharmacists on a full-time basis mentioned the following reasons for failing to do so. The most frequent reason was the lack of sufficient workforce for other non-ward-based activities, such as dispensing and drug supply management (23, 88.5%). Other reasons included staff turnover (20, 77%), lack of confidence of pharmacists to work in wards (7, 27%), poor management support to familiarize other health care staff with CPS (7, 27%), and lack of a job description (11, 42.3%). A review from India reports similar factors, including lack of sufficient pharmacy workforce and lack of administrative support, among the main barriers to the implementation of CPS across Indian hospitals (37).

However, reasons such as lack of confidence, inadequate support from management, and lack of a job description can have very practical and relatively easy solutions within the health facility if management is convinced the service is indeed necessary and needs to be strengthened. Of 41 respondents, 17 (41.5%) hospitals proposed employing more graduates as the solution for human resources problems while 22 (53.7%) hospitals proposed that training of practicing pharmacists and employing graduates would both be practical approaches to addressing human resources challenges.

Table 2. Pharmacy Workforce Situation at Hospitals

Number of CPS staff	Hospitals with available staff for CPS		Hospitals with staff providing CPS		Hospitals with staff providing CPS on a full-time basis	
	Number	Percent	Number	Percent	Number	Percent
0 to 3	7	16.3	25	58.1	35	81.4
4 to 7	25	58.1	15	34.9	7	16.3
8 to 11	9	20.9	2	4.7	1	2.3
14 and 15	2	4.7	1	2.3	0	0.0
Total	43	100.0	43	100.0	43	100.0

Note: N = 43 hospitals.

Of the 43 hospitals involved in this assessment, only 18 (41.9%) had job descriptions. Some of the reasons mentioned by the 25 hospitals for not having a job description were as follows:

- Lack of awareness about the need for a separate job description (8, 32%)
- Lack of nationally prepared document that guides preparation of job description (5, 20%)
- Expectation by hospital to receive job description from higher government offices such as RHBs (2, 8%)
- No trend in hospitals to give job description to staffs (2, 8%)
- Failure of the hospital to adopt the job description prepared by the RHB (1, 4%)

Existing practice shows that developing and providing job descriptions to health care professionals is very poor in Ethiopian hospitals. Professionals are assumed to know what their specific roles and responsibilities are upon graduation. However, basic principles of human resources management point to the benefits of a carefully prepared job description, such as clarification of roles and responsibilities, communication of expectations, instituting accountability, and performance appraisal. Clearly, the absence of job descriptions has contributed to the poor performance at some of the hospitals, and hospitals seem to need support in preparing and adopting job descriptions.

Except in two hospitals from Tigray, in all other hospitals (41, 95.3%) pharmacists were given additional duties besides ward-based clinical pharmacy activities. As table 3 shows, in the 40 hospitals that responded to this question, the major activities pharmacists were engaged in included provision of drug information services (38, 95%), involvement in DTC-related activities (34, 85%), and dispensing at an outpatient pharmacy (33, 82.5%). The least mentioned responsibility was managing the drug store (6, 15%).
This result shows that pharmacists providing CPS were engaged in various other activities, creating a positive spillover effect as it allows an opportunity for other activities such as dispensing, medicine selection, and procurement to be looked into from the perspective of the actual needs of patients. However, ward-based activities will be undermined because pharmacists may not be available to provide care to inpatients on a full-time basis. As a result, many of the patients were not receiving follow-up from admission to discharge. This situation is believed to create frequent service interruptions, thereby leading to a lack of accountability for ward-based responsibilities. This result agrees with experiences from a number of countries that implemented CPS. According to the literature, hospital pharmacists carry out many non-ward-based duties in many countries, such as Australia, India, Pakistan, South Africa, and Zimbabwe (18). However, since Ethiopia is just beginning delivery of CPS

and that the number of pharmacists is low, the likelihood of failure might be high if this challenge is not resolved early on and hospitals receive the necessary support to strengthen CPS.

Table 3. Summary of Non-Ward-Based Activities Performed by Pharmacists Providing Clinical Pharmacy Services

Non-ward-based activities	Frequency	Percent
Manage the pharmacy department of the hospital	30	75.0
Dispense at outpatient pharmacy	33	82.5
Dispense at inpatient pharmacy	30	75.0
Dispense at emergency pharmacy	20	50.0
Dispense at antiretroviral treatment pharmacy	26	65.0
Involvement in drug supply activities	29	72.5
Manage the pharmacy store	6	15.0
Work at chronic care pharmacy	22	55.0
Provide drug information service	38	95.0
Involvement in drug list development/revision	33	82.5
Conduct drug use evaluations/prescription reviews	24	60.0
Involved in DTC meetings	34	85.0

Note: N = 40 hospitals.

Scope and Range of Clinical Pharmacy Services

Hospital pharmacies should prepare action plans for each fiscal year so their contributions can be quantified and communicated (38). Having an approved plan of action for clinical pharmacy may also indicate ownership of the service by the hospital. The assessment shows that 29 (67.4%) of the 43 hospital pharmacy departments had a clinical pharmacy–related plan of action for 2007 EC (July 2014–June 2015). The result reveals that the CPS planning culture needs to improve. Being unfamiliar with the specific measurable targets for CPS could have contributed to the observed level of planning practice. A few of the reasons mentioned by the hospitals for not developing a plan of action included late assignment of clinical pharmacy staff after preparation of the annual action plan; frequently changing pharmacy department heads, coupled with absence of systems to enforce handover of planned and performed activities prior to leaving the hospital; discontinuation of CPS; and absence of an annual action plan for the pharmacy department as a whole.

Ward-based CPS should be established in any hospital ward where medicines are prescribed for inpatients. But during the early stages of the practice, initiating the service in wards with a larger volume of medicine use or those with circulation of high-risk medicines and potential for misuse of medicines would be beneficial. In line with this assumption, the hospitals had been recommended to start CPS in medical, pediatric, and surgical wards. Maternity wards were also of special interest to protect mothers and newborn babies from the adverse effects of medicines. Accordingly, the results from this assessment show that of the 41 hospitals that initiated the service, the wards where pharmacists were assigned included medical wards (35, 85.4%), pediatrics wards (26, 63.4%), and surgical wards (6, 14.6%). In addition, 2 hospitals had CPS in gynecological/obstetrics wards.

The study also identifies that in the assigned wards, pharmacists were engaged in a number of activities. As shown in table 4, pharmacists in most of the hospitals (35, 85.4%) were

involved in bedside ward rounds with the MDT. The activity that the least number of pharmacists were engaged in was attending pharmacy-only morning sessions (19, 46.3%). The involvement of pharmacists in MDT ward rounds allows them to deliver patient care before problems occur and to assist the team in treatment selection by providing information ranging from availability of medicines to information used for treatment choices in specific clinical conditions.

MDT rounds is a tool for improving the quality, safety, and patient experience of care (39). A number of studies provide evidence of improved medication management with multidisciplinary ward rounds that include pharmacists. In a prospective study done in a Dutch hospital, the incidence of prescribing errors during the intervention period that included pharmacists in the MDT round was significantly lower than during the baseline period: 62.5 per 1,000 monitored patient-days compared with 190.5 per 1,000 monitored patient-days. Preventable adverse drug events were reduced from 4.0 per 1,000 monitored patient-days during the baseline period to 1.0 per 1,000 monitored patient-days during the intervention period (40). Another study conducted at Henry Ford Hospital in the United States finds that the rate of preventable adverse drug events was reduced by 78% from 26.5 per 1,000 hospital days to 5.7 per 1,000 hospital days because of participation of pharmacists in MDT rounds (41). These studies show a number of benefits would be gained if pharmaceutical care is included in the package of patient care services. Even though detailed clinical benefits were not observed during the assessment, the results show an encouraging trend of involving pharmacists in ward rounds. This study also shows that variation exists in what specific activities are performed by pharmacists in the wards. This situation may be caused by lack of standard job descriptions and guidelines that provide clear expectations for the pharmacists.

Table 4. Summary of Specific Ward-Based Clinical Pharmacy Activities in Hospitals

Specific ward-based activities	Frequency	Percent
Ward rounds with MDT	35	85.4
Chart reviews	32	78.0
Morning session with MDT	28	68.3
Ward rounds - pharmacy only	22	53.7
Morning session- pharmacy only	19	46.3

Note: N = 41 hospitals.

Accessibility of patient medical records (charts) by pharmacists was also covered in the assessment. Thirty-eight (92.7%) hospitals responded that patient medical charts were accessible to the pharmacists. This result is very encouraging because it addresses pharmacists' fear (during deployment) that patient treatment charts might not be available for pharmacists' evaluation and follow-up. The Caldecott Information Governance Review II (of the Royal Pharmaceutical Society of England) recommends that "for the purposes of direct care, relevant personal confidential data should be shared among the registered and regulated health and social care professionals including pharmacists who have a legitimate relationship with the patient" (42). Pharmacists' access to patients' records would facilitate a more proactive approach to monitoring and supporting adherence to medicines and the sharing of information with other health professionals involved in a patient's care. Improved medicine adherence would mean a reduction in medicine waste and a reduction in adverse effects.

The three hospitals that reported difficulty in pharmacists' accessing medical charts gave the following reasons: "nurses always use the medical chart and they don't want to give us when

needed"; "concerned bodies were not informed about the need to have the medical charts"; and "the charts are usually in the hands of medical students (university hospital)." Inability to access patient charts means that pharmacists would be unable to assess basic clinical information that guides their decisions and recommendations, hence making pharmaceutical care provision almost impossible.

Clinical pharmacy interventions need to be properly recorded and documented within the patient's medical record (43,44). To support hospitals in this respect, standard formats were developed and distributed to hospitals involved during the in-service training. Of the 41 hospitals that had initiated CPS, the main clinical pharmacy documentation form, that is, the patient medication profile form, was available in 40 (97.6%). The reporting template was available in 37 (90.2%), and the refer/transfer-out/discharge medication information form was found in only 10 (24.4%) hospitals (table 5). These formats are standardized and accompany a standard operating procedure (SOP) manual prepared and disseminated to these hospitals to standardize CPS (44).

Table 5. Availability of Standard Tools for Documentation of Clinical Pharmacy Interventions

Clinical pharmacy forms	Frequency	Percent
Patient medication profile form (Inpatient)	40	97.6
Pharmaceutical care progress note record form (Inpatient)	17	41.5
Chronic patients medication profile form (Outpatient)	17	41.5
Refer/Transfer-out/discharge medication information form	10	24.4
Clinical pharmacy/pharmaceutical services planning template	27	65.9
Clinical pharmacy/pharmaceutical services reporting template	37	90.2

Note: N = 41 hospitals.

Clinical pharmacy interventions were being documented in 36 (87.8%) of the 41 hospitals. The other 5 hospitals had not started or had discontinued the documentation. Of the 36 hospitals, 33 (91.7%) used the standard patient medication profile form distributed by PFSA and USAID/SIAPS. Twenty-two (61.1%) of the 36 hospitals had succeeded in making the patient medication profile form part of the patient's medical chart. This is a very good development because it makes the pharmacist's recommendation readily available to the prescriber. Three hospitals kept the filled medication profile formats at the ward (separately from the medical chart), while 11 hospitals kept them at the pharmacy department. Some of the reasons mentioned for not making the medication profile form part of the patient's medical chart included unavailability of full-time staff, lack of awareness, nurses' resistance, and absence of accountability.

The preceding reasons again indicate a need for more full-time clinical pharmacy staff and awareness creation. Mackinnon and Mackinnon note that "Documentation of pharmacists' interventions, their actions, and the impact on patient outcomes is central to the process of pharmaceutical care. Unless pharmacists in all practice settings document their activities and communicate with other health professionals, they may not be considered an essential and integral part of the healthcare team" (45). A study identified that at least 115 of 428 (27%) documented interventions by pharmacists prevented patients from suffering potentially serious side effects and adverse drug reactions (46). Such evidence is created only if proper documentation is practiced. Moreover, clinical pharmacy interventions need to be documented and reported so that information on the impact of the program is easily available to policy makers, thereby facilitating required attention and support.

Outcomes of Clinical Pharmacy Services

Clinical pharmacy documentation, including monthly reports, was reviewed as part of the assessment to measure CPS outcomes. It is noteworthy that hospitals were documenting and reporting, starting from CPS initiation. However, the results indicate that hospitals were not consistent in documenting and reporting their interventions. A total of 287 monthly reports were claimed to have been produced among 36 hospitals (of 41 hospitals that started CPS) between August 2012 and March 2015. Five hospitals had not started producing reports on CPS. The number of reports produced by these hospitals ranges from 1 report (from 6 hospitals) to 19 reports (from 1 hospital) (table 6). Copies of reports were obtained and recorded from 31 hospitals. In another observation, 15 hospitals were found to have produced and sent reports until the month before the month of assessment. One of the hospitals had stopped reporting for two years.

Table 6. Number of Clinical Pharmacy Reports Produced by Hospitals, August 2012–March 2015

Number of reports	Number of hospitals	Percent
0	5	12.2
1–5	14	34.1
6–10	9	22.0
11–15	8	19.5
>15	5	12.2

Note: N = 41 hospitals.

Reports were shared from 31 hospitals, and the reports reveal that a total of 8,257 DTPs were identified. The highest number of DTPs identified was the need for additional drug therapy (29.1%), followed by unnecessary drug therapy (20.7%) and noncompliance (16.9%). The reports further show that additional drug therapy was recommended for 2,101 (87.4%) identified problems. In addition, interventions were provided for 1,266 (90.9%) patients who were noncompliant with their treatment. Overall, pharmacists were able to intervene on 7,183 (87%) DTPs (figure 1). These figures show the level of prevalence of problems and the crucial interventions made by pharmacists. Even though detailed analysis of these interventions in terms of their clinical and economic impacts is beyond the scope of this study, many negative health and economic consequences were obviously averted because of these interventions.

Various studies report that different types of DTPs occur in patient treatment settings. A study on inpatient prescribing errors and pharmacist interventions at a teaching hospital in Saudi Arabia identifies frequencies of wrong strength and wrong administration of prescribed medicines as 35% and 23%, respectively. That study also reports that other errors, such as wrong patient, wrong drug, and wrong dose, were encountered. These problems were duly corrected by pharmacists working at the wards (47). Another study that evaluated the clinical pharmacy interventions in a primary care clinic for veterans reports that approximately one disease-specific intervention and one additional pharmacotherapy intervention were made for every visit with a clinical pharmacy specialist (48). Another study by Klopotowska et al. reports that on-ward participation of a hospital pharmacist in a Dutch intensive care unit was associated with significant reductions in prescribing errors and related patient harms (40).

These studies attest to the fact that the addition of pharmaceutical care in patient care settings reaps greater health returns. And the results from this assessment support such claims.

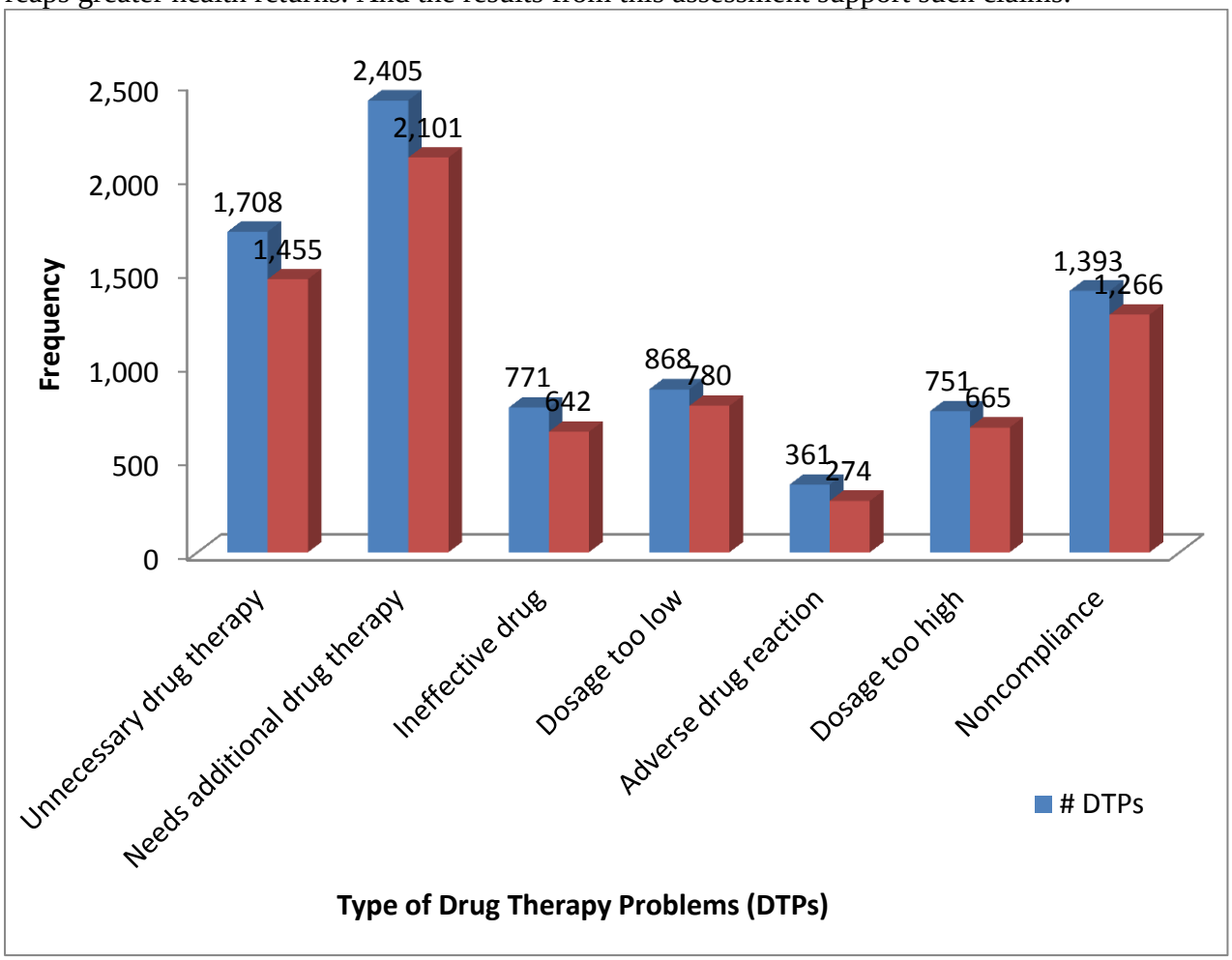

Figure 1. Type and number of DTPs identified and interventions by pharmacists (N = 31 hospitals)

The level of acceptance of the interventions recommended by the pharmacists was also assessed based on the review of reports, and 6,329 (88%) interventions were fully accepted and implemented by the MDT (figure 2). A study done in India shows the acceptance rate of recommendations and change in drug therapy was 70.6% (49). Another study that assessed the implementation of Belgian clinical pharmacy services that involved interventions by clinical pharmacists shows the acceptance rate of pharmacists' recommendations by practicing physicians was 87.7%. The interventions with acceptance resulted in major (28.3%) and moderate (68.3%) clinical impacts (50). The current assessment shows comparable results, and the data again support the claim that pharmacists are valued members of the health care team because of the significance of interventions and their health impacts.

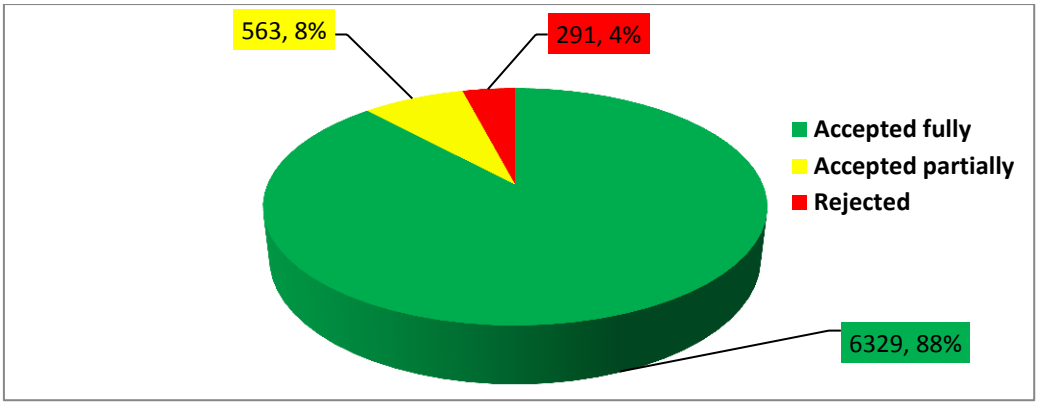

Figure 2. Acceptance rate of interventions recommended by pharmacists, August 2012–March 2015 (N = 31 hospitals)

Perception of Management and Health Professionals on Clinical Pharmacy Services

Hospital management and staff opinion about the importance of CPS should be continually and objectively assessed to gauge how the contribution of pharmacists to patient care is being perceived. In this study, opinions of hospital management (CEOs and medical directors) were collected. In addition, a physician, a nurse, and a pharmacist were interviewed from each assessed hospital. The interviewees were asked if they believed CPS provided in the hospital were contributing to quality of patient care. They also provided further information as to why they thought CPS were crucial. Even though these claims by the respondents need further investigation to improve their credibility, the responses show the value respondents attach to the services and their personal experiences in managing the services.

Thirty-seven of 38 CEOs (97.4%) who were available for the interview said the services were very important. The following points highlight the reasons why CEOs thought CPS were very important:

- ADR reporting and good involvement in DTP management, such as dose optimization and identification and management of drug interactions
- Counseling for patients on proper use of medicines and involvement in patient education at Outpatient Department waiting areas
- Constructive communication with physicians, leading to quality patient care and treatment outcomes
- Strengthening and empowering other health care staff on medicine information
- Reduced length of hospital stay and improved prescribing practices
- Improvement of bedside medication handling
- Participation in ward rounds, leading to rational use and better availability of drugs
- Contribution to cost-effectiveness of treatment
- Provision of medicine-related information during morning sessions and assisting prescribers on treatment decisions
- Evaluation of patients every day once medicines are prescribed by physicians
- Contributing to safe psychotropic prescribing

Likewise, of 33 chief clinical officers (CCOs, or medical directors), 31 (93.9%) claimed that CPS were crucial to provide quality patient care. The medical directors mentioned the following advantages as evidence for the necessity of clinical pharmacy practice:

- More complete patient care
- Contribution to counseling of patients on the proper use of their medicines
- Dose optimization, identification and management of drug interactions, side effects, reconstitution of intravenous (IV) medications
- Improving drug availability and improved medication management in the ward
- Filling gaps on information related to medicines for health care providers and patients
- Prevention of unnecessary drug treatment
- Help in drug selection
- Getting engaged in drug use evaluation
- Promoting adherence to standard treatment guidelines

Similarly, of 39 ward physicians, 37 (95%) believed that CPS provided in the hospital were beneficial. The following benefits were mentioned by the physicians:

- Giving advice on IV to oral switch
- Providing information on appropriate drug selection, dosage, drug interactions, and ADRs
- Solving transcribing problems by motivating staffs to update their knowledge on medicines and prevention of polypharmacy
- Improving drug availability by providing information on potential substitutions and new arrivals
- Improving patient adherence and counseling during discharge

All responding nurses (40) said that CPS were very important for the provision of quality care. They mentioned the following reasons for their claims:

- Motivate other health care providers to update themselves on medicines
- Provide information on dose adjustment, duration of treatment
- Update us on availability of medicines, identify contraindications, ADR prevention, support on route of administration
- Follow patient outcomes
- Patient adherence to treatment and emergency consultation about medicine
- Evaluation of prescriptions and counseling patients on discharge
- Advice on IV to oral switch
- Act as immediate delegate to physicians and take responsibility for caring for patients; act as our reference regarding therapy and reduce our workload, errors, and fears

Thirty-eight (97.4%) pharmacists said CPS were important. Some of the contributions made by the clinical pharmacy staff, according to these pharmacists, were the following:

- Identifying and preventing drug therapy problems
- Reducing cost of treatment
- Contributing toward evidence-based treatment and improved quality of patient care
- Improving counseling to patients with chronic diseases

- Motivating other pharmacy staff to update themselves on medicine therapy
- Identifying and preventing drug therapy problems even at Outpatient Department level
- Improving dispensing and counseling practice
- Improving availability of medicines at wards
- Reducing length of hospital stay
- Changing the image of the profession with respect to direct patient care

The physicians were further asked if pharmacists were contributing to a set of expected roles and responsibilities. As presented in table 7, of 36 physicians interviewed, most (32, 89%) physicians agreed that pharmacists were contributing to promotion of patient adherence to prescribed regimens and to a decrease in occurrence of medication errors. Detection and management of ADRs and improving availability of medicines in wards were also mentioned by 75% of the hospitals. The figures show that physicians were highly appreciative of the specific contributions made by the pharmacists in improving the quality of care in inpatient settings.

Table 7. Key Contributions of Clinical Pharmacy Services in Hospitals as Reported by Physicians

Type of clinical pharmacy service effects	Frequency	Percentage
Improved adherence to treatment guidelines	21	58.3
Increased adherence to prescribed regimens	32	88.9
Improved availability of medicines at the ward	27	75.0
Decreased occurrence of medication errors	32	88.9
Increased detection and management of ADRs	27	75.0
Increased reporting of ADRs	13	36.1
Improved communication with physicians	28	77.8

Note: N = 36 hospitals.

A US study reports that "several investigators found that physicians are receptive to specific clinical services provided by pharmacists, such as TDM, patient counseling, and recommendations for therapeutic agents. The level of physician acceptance of these services was reported, in several of these studies, to be related to the degree of exposure physicians have to pharmacist-provided services. Several other investigators found that physicians are generally receptive to a wide range of clinical pharmacy services provided in an inpatient setting, if provided in a consultative or supportive role" (51). Another study from the United Arab Emirates states that 92% of physicians and 87% nurses believe clinical pharmacists are a very important part of the health care team (52). An Iranian study discloses that the mean number of clinical pharmacist interventions per patient was 3.2, and generally a majority of the physicians and nursing staffs favorably regarded the interventions made by pharmacists (53). The results from the present study show similar findings that encourage pharmacy professionals to contribute to patient care in a more meaningful way.

The pharmacy personnel providing CPS were asked to rate the level of acceptance of their contributions by other health care providers. As presented in figure 3, a majority of pharmacists believe that other health care professionals favorably accept their contributions. Of 42 pharmacists interviewed, 40 (95%) thought the response they got from other health professionals was good, very good, or excellent. For a practice that is starting to be

implemented in this country, the level of acceptance by other professionals was a praiseworthy achievement. It also shows how the services are viewed and the level of expectation created in the health care community. Also noteworthy is that pharmacists' perception of how their contributions are being received by others is a crucial part of their job satisfaction.

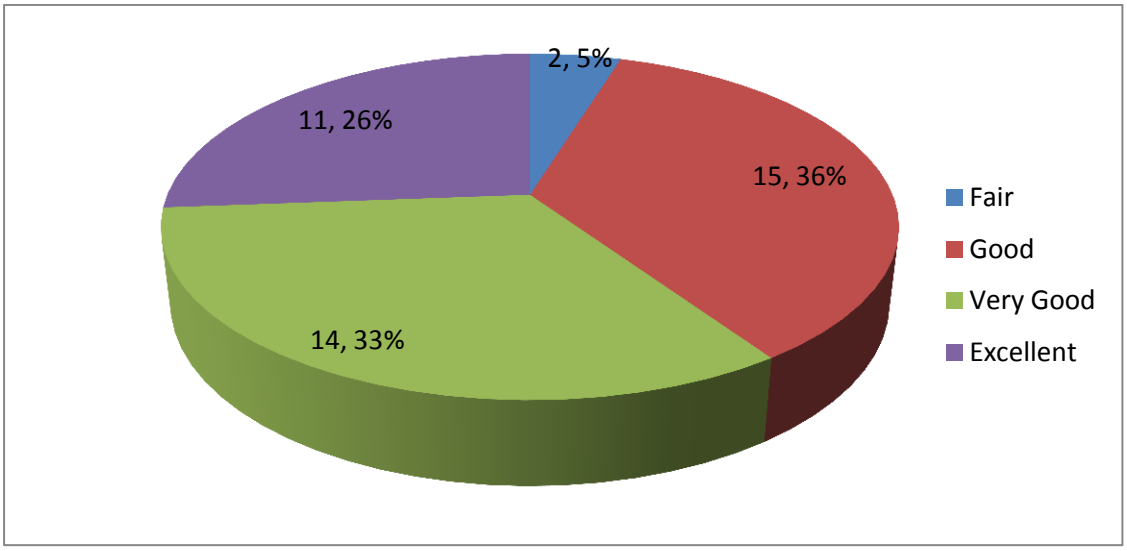

Figure 3. Pharmacists' rating of acceptance of their contributions by other health care providers (N = 42 hospitals)

Job Satisfaction, Opportunities, Challenges, and Recommendations

The success of any undertaking ultimately depends on the level of job satisfaction and morale of the people involved in the day-to-day activities. Hence, the level of job satisfaction of staff at the front line should be assessed, and interventions should be put in place to boost performance. This is especially true considering that clinical pharmacy practice is a new initiative in the country. In this assessment, the level of job satisfaction of the pharmacists providing clinical pharmacy services was assessed on a Likert scale. The analysis of the results shows that 1 (2.4%) pharmacist was very dissatisfied, whereas 17 (40.5%) and 8 (19.0%) pharmacists were dissatisfied and neutral about their job, respectively. On the positive side, 13 (31.0%) and 3 (7.1%) pharmacists were satisfied and very satisfied, respectively. The results clearly show that the majority (26, 62%) of the 42 pharmacists interviewed were not satisfied with their job.

However, other studies reported a different pattern of job satisfaction for pharmacists involved in clinical services. A study conducted by Rauch indicates that pharmacists providing these services were significantly more satisfied than pharmacists not providing CPS (54). Another study by Olson and Lawson shows that job satisfaction of hospital pharmacists was positively associated with involvement in clinical pharmacy activities. The study reports that mean job satisfaction increased as the percentage of time spent performing clinical pharmacy activities increased (55). These and other similar studies (56–58) indicate that the more pharmacists are engaged in clinical activities in hospital settings, the more they are satisfied. The pharmacists involved in this study show more dissatisfaction, contrary to such findings from elsewhere.

Twenty-five pharmacists who reported neutral and below-neutral levels of job satisfaction were further asked why they were dissatisfied with their jobs. The most frequently mentioned reason was lack of supportive supervision by relevant stakeholders (20, 80%). Other important reasons for dissatisfaction included absence of job description (17, 68%), lack of support from hospital management (16, 64%), and insufficient training at undergraduate level (11, 44%). Lack of support of pharmacy professionals, physicians, and nurses was also mentioned by a few of the interviewed pharmacists. These reasons indicate that the major sources of dissatisfaction are those related to lack of support from concerned government organizations and hospital management. Other reasons are related to availability of job descriptions and insufficient training at undergraduate level. These reasons collectively reveal that CPS needs to get more attention and support from the government; otherwise these factors will continue to have a huge impact on staff job satisfaction.

In addition, of 38 interviewed pharmacists 33 (86.8%) thought that incentive packages (such as salary, duty payments, etc.) were a source of dissatisfaction. The major solutions recommended by the pharmacists to address problems related to incentives are as follows:

- Pharmacists working at the ward need to work during weekends and at nights to benefit from the duty payments like the other pharmacists working at the dispensing units. The duty assignment should be based on demand and work load. This will help pharmacists follow the patient progressively because pharmaceutical care is a continuous process from admission to discharge.
- Salary scale needs readjustment based on the level of effort and level of risk of pharmacists assigned to handle ward-based services. The salary scale should also take into account the extra one-year stay in campus.
- Ways need to be devised to enable pharmacists be part of the private wing initiative.
- Capacity-building opportunities for pharmacists practicing clinical pharmacy should be available.
- Career development schemes such as MSc programs should be in place to motivate staff.
- Awareness creation should be conducted for fellow pharmacists, other health care providers, and government officials at all levels.

Clearly, absence of compensation could be a source of job dissatisfaction. A study by Johnson, Hammel, and Heinen on the levels of satisfaction among hospital pharmacists identifies compensation relative to others and amount of compensation as the sources of greatest satisfaction among surveyed pharmacists (59). A study on job satisfaction and its determinants among health workers in Jimma University Specialized Hospital, Southwest Ethiopia, by Yami et al. indicates that incentive packages were the major source of dissatisfaction (60). The present study also clearly indicates that incentive packages are a major source of dissatisfaction and need to be improved for clinical pharmacy practitioners through the strategies previously indicated.

The new undergraduate pharmacy curriculum needs to be adequate to equip pharmacists with all the necessary knowledge and skills so they can face practical clinical challenges successfully. Accordingly, the pharmacists were asked whether the curriculum had been complete enough to cover all areas they encountered in actual practice. Of 42 pharmacists interviewed, 39 (93%) pharmacists said the curriculum was not adequate for their work requirements. The areas that needed improvement, according to the pharmacists, are listed here:

- New subjects, such as physical symptoms, pathology, interpretation of lab results, and other diagnosis methods should be included.
- Add a pathology course or expand the pathophysiology part of the pharmacotherapy course.
- The curriculum should be uniform across universities.
- An extended period of practical attachment is needed. Attachment should be started earlier than during the fifth year.
- External exams should be started.
- The curriculum should be upgraded to PharmD level.
- Attachment should be started in maternity, ophthalmology, psychiatric, and dermatology wards, etc.
- The theory and practical part (clerkship) should be balanced.
- Formal assessment of the curriculum should be conducted and changes made accordingly.
- Each pharmacotherapy course should be followed by ward attachment.
- Courses not applicable in real practice should be reduced while more relevant courses such as physical examination and drug administration should be added.
- During attachment, students should be closely guided by the clinical pharmacists and the physicians.
- Continuous assessment of students should be applied.
- Clerkship should be changed to internship.

Clinical pharmacy service coordinators were asked what notable opportunities they observed in their respective hospitals that created a favorable environment for the practice. Different hospitals had differing opportunities. An opportunity in one hospital could be a challenge in another hospital. The opportunities mentioned by the pharmacists include the following:

- Initiation of the practice by in-service trained pharmacists and awareness creation prior to assignment of graduates
- Acceptance by other health care professionals
- Presence of supporting partners such as USAID/SIAPS
- Commitment of hospital management and clinicians to sustain the service
- Good team spirit among staff
- Management commitment in assigning full-time pharmacists for ward-based activity
- Experience sharing from other sites
- Good working environment and neatness of the hospital
- Referral hospital status means a lot of cases with co-morbidities, which stimulate the clinical pharmacy professional to be more engaged
- Government’s direction toward patient-centered pharmaceutical services
- More public demand for pharmacy services
- Commitment of staff
- Accessing patient charts at any time

The coordinators were also asked to reveal what major challenges they faced. Again note that challenges differ among hospitals. The following points summarize what was mentioned as challenges:

- Shortage of pharmacy workforce and staff turnover
- Absence of job description; lack of clearly defined roles, responsibilities, and accountability
- Absence of attractive incentive package; no duty, lack of improved salary scale
- Lack of in-service training, lack of refresher training and mentoring by universities
- Lack of resources such as Internet access, updated guidelines, and references
- Space problems for pharmacy station at wards
- Poor links with the university (a university hospital)
- Level of competency with new initiatives compared to other professionals
- Inadequate ward pharmacy (inpatient pharmacy)
- Poor discharge counseling because of time of discharge (no duty on weekends)
- Interruption of services because of other duties, e.g., recent quantification exercise by PFSA and RHB
- Lack of follow-up from responsible bodies

When asked what they would suggest as a solution for these challenges and limitations, the clinical pharmacy service coordinators shared the following solutions:

- Because the service is a new initiative, roles and responsibilities as well as accountability should be clearly defined and communicated.
- Efforts need to be geared toward awareness creation in other health professionals, including pharmacists, to create better recognition of CPS.
- Promote the importance of CPS and solicit strong support from government and partners. Implement closer mentoring, follow-up, and support to strengthen CPS.
- On-the-job training should be given to pharmacy staff to fill gaps in undergraduate study and to keep abreast with changes in the practice.
- Experience-sharing events should be organized so that best practices can be scaled up and ways to solve challenges can be shared among health facilities.
- Conduct regular monitoring and evaluation to identify and resolve gaps in practice.
- Improve incentives by providing duty, adjusting salary scale, and increasing human resources.
- Strengthen relations with nearby pharmacy training colleges.
- Make resources available, such as improved accessibility of Internet and drug information resources.
- Establish clearly defined ownership of the initiative by the government (RHB and PFSA).

Finally, the coordinators added some final points that the team of assessors should note and communicate to responsible institutions. The following points summarize the main themes:

- The responsible government bodies should organize trainings and support for experience-sharing events, research, and publications.
- Pharmacists with patient-oriented training should be deployed to hospitals rather than health centers because hospitals demand CPS more than health centers and the hospitals are currently facing deficiencies in this regard.
- The service should be owned fully by FMOH and RHB, and continuous monitoring and evaluation should be done from the government side.

- Implement standard education programs, as done in other countries (PharmD), and strict follow-up of the pharmacy curriculum and how it is taught at private colleges to maintain the standard of education and practice.
- Standardize the practice with SOPs and scale up efforts to cover other wards and services.
- Have university lecturers follow up students strictly during practical attachment in inpatient wards, and train instructors at higher level.
- Update pharmacy staff on newly introduced initiatives on a continuous basis.
- Reduce other responsibilities of pharmacists involved in providing CPS so they can focus on ward-based activities.
- Devise incentive packages to motivate staff and prevent turnover of pharmacy staff.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The assessment has enabled identification of the status of implementation of CPS in Ethiopia, its outcomes, opportunities, and challenges. Moreover, the assessment team gathered lot of important information that is useful in guiding future directions by all implementing stakeholders, including FMOH, PFSA, RHB, universities, and USAID/SIAPS.

The results show that CPS are currently being practiced at most of the hospitals surveyed with varying degrees of quality and scope. In hospitals where the service was not started, the major reasons were inadequacy of pharmacy workforce and lack of management support. In those facilities where CPS were started, assignment of full-time staff at wards was practiced at 40% of the hospitals. In others, pharmacists were required to cover other pharmaceutical activities in addition to the ward-based activities. Because of workload and inadequate staffing, only a limited number of patients, categorized by severity of case, actually receive CPS. The assessment also revealed the absence of uniformity of practice across some hospitals. Activities such as morning sessions, documentation, and reporting are not practiced consistently in all hospitals.

The support of management in following up CPS and identifying and resolving implementation issues was encouraging. However, not all hospital management was equally supportive. Some of the hospitals have raised serious concerns over the lack of support from management. The performance appraisal aspect of management was very weak for CPS staff. The lack of management involvement is also reflected by the absence of clinical pharmacy–related action plans and job descriptions. Another worrying trend observed by the assessment teams was that assigned pharmacists do not work at nights and on weekends, thus making CPS outcomes very difficult to evaluate and creating a gap in the continuity of care during these hours and days.

Documentation and reporting were also found to be an area that needs closer attention. Even though the major documentation form was available in 97.6% of hospitals, it was in 87.8% of hospitals that interventions were being documented. And other (8%) hospitals were not using the standard form distributed for the purpose. However, 22 hospitals succeeded in incorporating the patient medication profile form as part of the patient's permanent medical record (chart). This area needs improvements because its absence makes pharmacists' communication with the MDT very difficult.

Clinical pharmacy has been practiced in Ethiopia for the past three years. Review of records testifies to the fact that despite the challenges, CPS greatly contribute toward improved health outcomes. A new paradigm is evolving in patient care, that is, emphasis on treatment outcomes and patient safety by involving the pharmacist in MDTs of health care professionals as providers of pharmaceutical care. Team spirit is changing for the better, positively affecting patient treatment outcomes. The importance of the profession in the eyes of the patients and other providers has also significantly improved. Now pharmacists are being viewed as providers of patient care rather than only as suppliers of medicines. The supply side is also improving because of better knowledge of the specific needs of inpatients.

Available records reveal that CPS are truly making a change in improving patient care by contributing to the safe, effective, and economic use of medicines. The interventions made by pharmacists include discontinuing unnecessary medications; providing additional drug therapies; changing ineffective regimens; adjusting dosages; identifying, managing, and reporting of ADRs; and improving adherence to treatment. These interventions were largely accepted (88%) and implemented by the health care team to effectively maximize treatment outcomes while ensuring patients' safety.

The level of job satisfaction of the practicing pharmacists is an area that needs further interventions. Major sources of dissatisfaction were lack of internal and external support, lack of job descriptions, and inadequacy of incentive packages. Incentive packages are especially creating unnecessary strain in pharmacists' work. Lack of duty payment means these pharmacists do not provide service at nights and on weekends. This has forced them to choose dispensing services, which are currently entitled to duty payment, over ward-based CPS.

According to hospital management and staff, the major contributions of CPS have been well articulated in terms of increased awareness on how professionals implement pharmacotherapy in individual patients; improvement in prevention, identification, and management of ADRs; improved adherence to treatment by patients; improved compliance to treatment protocols; improved communication and team spirit; and improvement in overall patient care. Further investigations are needed to strengthen and substantiate these claims.

Even though great results have been achieved in producing pharmacists, the undergraduate curriculum was a subject of major concern for the pharmacists. They thought the curriculum needs a major overhaul to be more relevant to the level of knowledge and skill demanded in actual practice.

The assessment has shown that the practice of clinical pharmacy in this country is gaining ground and is making huge contributions to improve quality of patient care. However, a number of challenges exist and need to be addressed in a very timely manner to make sure that the progress continues unabated.

Recommendations

Based on the findings, we recommend the following intervention points to strengthen and sustainably implement CPS in Ethiopian hospitals:

- Hospital DTCs should plan and implement clinical pharmacy as one of the major strategies in improving rational use of medicines. The DTCs should devise ways to strengthen the service by familiarizing the medical community with CPS and showing their importance to the medical community and by instituting a strong monitoring and evaluation mechanism.
- Hospital management and responsible government bodies such as FMOH, PFSA, and RHBs should support the service on a routine basis and implement a strong monitoring and evaluation system.
- The hospital management or RHB needs to develop contextualized job descriptions for staff involved in CPS provision.

- Hospitals need to implement the recently developed and disseminated SOP for CPS provision to standardize services.
- Hospitals need to hire more pharmacy staff and should encourage them to work in assigned wards. Pharmacists need to be given clearly defined expectations and accountability against which they should be appraised.
- Pharmacists need to work more hours in wards to properly discharge their responsibilities, and appropriate incentive packages need to be devised to motivate staff.
- Hospital management needs to organize awareness creation forums for all staff about the need and importance of CPS.
- Hospital management should ensure documentation and reporting forms are made available, forms are included in the patients' treatment charts, and interventions are recorded and reported.
- PFSA needs to develop and conduct need-based in-service trainings in consultation with FMOH, RHBs, universities, and hospitals.
- Universities need to be involved in provision of mentoring and supportive supervision of their students after deployment and use the information obtained (from this study) to tweak their undergraduate curriculum as deemed appropriate. The curriculum should reflect the needs of practitioners and need to adopt full-fledged PharmD program.
- PFSA, FMOH, and RHBs should work closely and continue promoting and creating awareness about CPS and should promote operations research in support of further improvement.
- Government stakeholders and partners should collaborate to generate evidence on returns on investments in terms clinical and pharmacoeconomic (cost-savings) outcomes to be used as a very powerful advocacy tool for CPS scale-up and sustainability.

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ANNEX 1. QUESTIONNAIRE

Questionnaire to Assess the Status of Clinical Pharmacy Service (CPS) Implementation in Ethiopian Hospitals

Date: _____; Time started _____(pm/am)

PART I: Profile of the Hospital

Name of hospital: _____; Region: _____
Town: _____ Tel #: _____
Level of hospital: □ Referral/specialized; □ General; □ Primary
Bed Number: Medical: _____; Pediatrics: _____; Surgery: _____; Gyn/Obs: _____;
Psychiatry: _____
Others: _____; Total: _____
PFSA Hub serving the Hospital: _____; Email: _____ Mobile # _____(pharmacy head or clinical pharmacy coordinator)

PART II: Initiation of CPS and Workforce

1. Has the hospital started providing ward-based clinical pharmacy service (CPS)? 1=Yes 2= No (Ask hospital management [CEO] or head of pharmacy department)
   1.1. If yes to q1, when was ward-based clinical pharmacy service started in the hospital: ____,____ (mm & yy) in EC
   1.2. If yes to q1, which of the following milestones have been met by your hospital CPS?
      1.2.1. Pharmacists are assigned to inpatient wards: full time basis ☐ not full time ☐
      1.2.2. Pharmacists regularly attend: Ward rounds ☐ Morning Sessions ☐
      1.2.3. All admitted patients in assigned wards get pharmaceutical care ☐
      1.2.4. Proper documentation of CPS using documentation tools ☐
      1.2.5. Produce regular reports regarding CPS ☐
      1.2.6. Others, specify:

      _____
   1.3. Does the hospital have an annual plan for clinical pharmacy-related activities? 1=Yes 2= No

2. What has been done by the management of the hospital to initiate and strengthen CPS? (More than one choice can be selected)
   2.1. An awareness creation program about CPS ☐
   2.2. Experience sharing with better performing hospitals ☐
   2.3. Routine follow up to identify challenges and devise ways to resolve them ☐
   2.4. Others, specify

      _____

3. Indicate the number of CPS workforce currently working at the hospital: (Ask pharmacy head or CPS coordinator)

Parameters	New graduates	Trained
# Currently available pharmacists for CPS		
# Pharmacists providing CPS		
# Pharmacists providing CPS on full-time basis		

4. If no pharmacist is working full time, please state the reason/s why? More than one choice is possible (Ask pharmacy head)
   - 4.1. Lack of sufficient human power ☐
   - 4.2. Staff turnover ☐
   - 4.3. Fear of challenges ☐
   - 4.4. Lack of support from the hospital management ☐
   - 4.5. Lack of job description ☐
   - 4.6. Others, specify_____

5. Do you think the number of pharmacists providing patient oriented services is enough? (Ask pharmacy head CPS coordinator) 1=Yes 2= No

6. If no to q5, what should be done about it?
   - 6.1. Train more patient oriented pharmacists (short term) ☐
   - 6.2. Employ more new graduate pharmacists ☐
   - 6.3. Others, specify:

     _____

7. Do the patient oriented pharmacists have job description approved by the hospital management? (Ask pharmacy head or CPS coordinator)
   1=Yes 2= No (If yes to q11, attach a copy of the JD)

8. If no to q7, what is/are the reason/s?

   _____

9. Are the patient-oriented pharmacists providing services other than ward-based clinical pharmacy service? (Ask pharmacy head) 1=Yes 2= No

10. If yes to q9, indicate which of the following activities they handle (More than one option is possible)
    - 10.1. Manage the pharmacy department of the hospital ☐
    - 10.2. Dispense at outpatient pharmacy ☐
    - 10.3. Dispense at in patient pharmacy ☐
    - 10.4. Dispense at the emergency pharmacy ☐
    - 10.5. Dispense at ART pharmacy ☐
    - 10.6. Involve in drug supply activities ☐
    - 10.7. Manage the pharmacy store ☐
    - 10.8. Work at chronic care pharmacy ☐
    - 10.9. Provide drug information service (DIS) ☐
    - 10.10. Involve in drug list development/revision ☐

10.11. Conduct drug use evaluations/prescription reviews ☐
10.12. Involve in DTC meetings ☐
10.13. Others, specify:

_____

PART III: Clinical Pharmacy Services

11. Does the pharmacy department have annual action plan for clinical pharmacy services for 2007EC?
    1=Yes 2= No (If yes to q11, take a copy of the action plan) (Ask pharmacy head)

12. If no to q11, state the reason/s why clinical pharmacy service is not included in the pharmacy department's annual action plan

    _____

13. In which **ward**/s is/are pharmacists attached to (include their number)? (Ask Pharmacy head/CPS coordinator)
    13.1. Medical ward: _____ ☐
    13.2. Pediatrics ward:_____ ☐
    13.3. Surgical ward: _____ ☐
    13.4. Gyn/Obs ward: _____ ☐
    13.5. Others (specify):

    _____

14. What specific ward-based pharmacy activities are the patient oriented pharmacists providing? (More than one choice is possible) (Ask CPS coordinator)
    14.1. Attend morning sessions: with MDT ☐ Pharmacist only ☐
    14.2. Involve in ward rounds: with MDT ☐ Pharmacist only ☐
    14.3. Conduct chart reviews ☐
    14.4. Others, specify:

    _____

15. Are patient medical charts accessible to the patient oriented pharmacists? (Ask CPS coordinator) 1=Yes 2= No

16. If no to q15, state the reason/s?

    _____

17. Are clinical pharmacy service documentation and reporting tools available at your hospital? (Observe availability of each form)
    17.1. Patient Medication Profile Form (Inpatient) ☐
    17.2. Pharmaceutical care progress note record form (Inpatient) ☐
    17.3. Chronic Patients Medication Profile Form (Outpatient) ☐
    17.4. Refer/Transfer-out/Discharge Medication Information form (Outpatient/Inpatient) ☐
    17.5. Clinical Pharmacy/pharmaceutical Services Planning template ☐
    17.6. Clinical Pharmacy/pharmaceutical Services Reporting template ☐
    17.7. Others, specify_____

18. Do you document clinical pharmacy services you provide? (Ask clinical pharmacists and observe)
    1=Yes 2= No
    18.1. If yes to q18, do you use the standard patient medication profile form? 1=Yes 2= No
    18.2. If yes to q18, where do you keep the patient medication profile form? (Ask patient oriented pharmacist and observe) (Write Yes or No)

Parameters	Medical ward	Pediatrics ward	Surgical ward	Gyn/Obs ward	Others wards
As part of patients' medical chart					
Separately at the ward					
Separately at the pharmacy department					

    18.3. If not part of patients' medical chart, state the reasons why?
    _____
    Are all patients assessed by patient oriented pharmacists from admission to discharge?
    1=Yes 2= No

19. If no to q19, state why all patients are not assessed
    _____

Document Review: ***The following questions should be answered after actual observation of clinical pharmacy records***

20. How many clinical pharmacy reports did the facility produce since the service started: _____ (count copies of reports)

21. When was the last time a monthly report was produced? _____

22. Take all reports (or daily summaries if reports are unavailable) and record the number of drug therapy problems, interventions, outcomes, etc.:

Parameters	**Number**		**Remark**
	(last report) (Month)	**Total (all reports)**	
Type and number of drug use problems identified			
Unnecessary drug therapy			
Needs additional drug therapy			
Ineffective drug			
Dosage too low			
Adverse drug reaction			
Dosage too high			

Parameters	Number		Remark
	(last report) (Month)	Total (all reports)	
Noncompliance			
Type and number of interventions made			
Discontinued unnecessary drug therapy			
Provided additional drug therapy			
Changed ineffective drug			
Increased dosage			
Prevented adverse drug reaction			
Decreased dosage			
Improved compliance			
Number of interventions accepted			
Accepted fully			
Accepted partially			
Rejected			
Outcome of therapy			
Improved			
Did not improve			
Number of morning sessions conducted			
With MDT			
Pharmacy only			
Number of cases presented on MDT morning session			
Number of ward rounds conducted			
With MDT			
Pharmacy only			

23. Take 3 patient treatment charts randomly from 2 wards where patient-oriented pharmacists are assigned. (Recently discharged patient chart is more appropriate) (1=Yes, 2= No)

Name of ward 1: _____	**Chart 1**	**Chart 2**	**Chart 3**	**Remark**
Is patient medication profile form attached?				
Are all sections of the patient medication profile form filled?				
Name of ward 2: _____				
Is patient medication profile form attached?				
Are all sections of the patient medication profile form filled?				

PART IV: Outcomes and Acceptance of Clinical Pharmacy Services

24. Do you believe the clinical pharmacy service provided by patient-oriented pharmacists is important for the overall care of the patient? (Ask the respective respondents).
    - 24.1. Hospital management (CEO) 1=Yes 2= No
    - 24.2. Pharmacy staff other than those providing CPS 1=Yes 2= No
    - 24.3. Medical director 1=Yes 2= No
    - 24.4. Physicians working in inpatient ward 1=Yes 2= No
    - 24.5. Nurses working in inpatient ward 1=Yes 2= No

25. If yes to q25, what contributions have the patient-oriented pharmacists made toward patient care? (Check if any evidence is available that can show the contribution they made.)
    - 25.1. Hospital management (CEO):
      _____
    - 25.2. Pharmacy staff other than those providing CPS:
      _____
    - 25.3. Medical Director (CCO):
      _____
    - 25.4. Head physician/s working in inpatient ward:
      _____
    - 25.5. Head nurse/s working in inpatient ward:
      _____

26. What major impacts did the patient-oriented pharmacists bring in your hospital? (More than one answer is possible) (Ask the Physicians)
    - 26.1. Improved adherence to treatment guidelines ☐
    - 26.2. Increased adherence to prescribed regimens ☐
    - 26.3. Improved availability of medicines at the ward ☐
    - 26.4. Decreased the occurrence of medication errors ☐
    - 26.5. Increased detection and management of ADRs ☐
    - 26.6. Increased reporting of ADRs ☐
    - 26.7. Improved communication with physicians ☐
    - 26.8. Others, specify,
      _____

27. How do you rate the acceptance of clinically oriented pharmacists' recommendation by other health care providers?(Ask patient-oriented pharmacists)
    - 27.1. Excellent ☐
    - 27.2. Very good ☐
    - 27.3. Good ☐
    - 27.4. Fair ☐
    - 27.5. Bad ☐

PART V: Job Satisfaction, Opportunities, Challenges, and Recommendations

28. How do you rate your level of satisfaction with your current job?(Ask one of the new patient-oriented pharmacists)
    - 28.1. Very satisfied ☐
    - 28.2. Satisfied ☐
    - 28.3. Neutral ☐
    - 28.4. Dissatisfied ☐
    - 28.5. Very dissatisfied ☐

29. If the answer to q29 is neutral, dissatisfied, or very dissatisfied, select the reasons from the following lists (more than one choice is possible).
    - 29.1. Insufficient training at undergraduate level ☐
    - 29.2. Absence of job description ☐
    - 29.3. Lack of support from hospital management ☐
    - 29.4. Lack of support from pharmacy staff ☐
    - 29.5. Lack of acceptance by physicians ☐
    - 29.6. Lack of acceptance by nurses ☐
    - 29.7. Lack of supportive supervision by government and partners ☐
    - 29.8. Others_____

30. Do you think incentive packages (duty, private wing, salary scale, etc.) are sources of dissatisfaction? 1=Yes, 2= No

31. If yes to q31, what should be done to improve satisfaction of CPS workforce:
    _____

32. Do you believe that the new pharmacy curriculum is sufficient to equip pharmacists with adequate clinical knowledge to provide CPS? (Ask the new patient-oriented pharmacists)
    1=Yes, 2= No

33. If no to q33 what changes are needed to make the curriculum more relevant? (Ask CPS coordinator)
    _____

34. What are the major opportunities for clinical pharmacy service to be initiated and established in your hospital?(Ask CPS coordinator)
    _____

35. What are the major challenges and limitations to initiate and establish clinical pharmacy services in your hospital? (Ask CPS coordinator)
    _____

36. What do you suggest as a solution for these major challenges and limitations? (Ask CPS coordinator)

    _____

    Any additional comments?

    _____
    _____
    _____

Checklist completed by: Time completed: _____(pm/am)

	Name	Date:	Signature
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____

ANNEX 2. ASSESSMENT GUIDE

Checklist of Activities and Guide for the Clinical Pharmacy Assessment and Mentoring/Supportive Supervision Team

Introduction

Clinical pharmacy is one of the intervention areas to improve the management and use of medicines at hospitals. The service is very important to optimize therapeutic outcomes that lead to improvements in quality of care and patient satisfaction. The Ethiopian Hospital Reform Implementation Guideline and the Health-Facilities' Minimum Regulatory Standards have included clinical pharmacy as an important part of hospital pharmacy services. The implementation of these standards was delayed because of lack of pharmacists with the required clinical knowledge and skills.

To tackle this problem, a number of efforts were initiated. The first was changing the curriculum of the undergraduate pharmacy program. The second and immediate action taken was the initiation of in-service training for hospital pharmacists. This initiative was jointly run by PFSA and USAID/SIAPS in collaboration with universities, namely, Jimma, Gondar, and Mekelle. So far about 200 hospital pharmacists have been trained and deployed in 65 hospitals. At the same time, two successive batches of the new patient-oriented pharmacists have graduated and deployed in hospitals all over the country.

Successive supportive supervision, trainings, and workshops have been held for concerned professionals and officials in a bid to strengthen the service. Documentation and reporting formats have been developed and are in use in these hospitals. Moreover, a standard operating procedures manual is being published by PFSA and USAID/SIAPS that is believed to immensely contribute to the standardization of the service.

These efforts will undoubtedly bring change in the practice of pharmacy in general and clinical pharmacy in particular. Hence, it is very important to assess the status, outcomes, challenges, and viable best solutions to support the service. And it is with this objective that this assessment and supportive supervision is planned and conducted. This checklist shows the steps that need to be followed to standardize and guide the whole supportive supervision, mentoring, and assessment activities. It also guides how to write the summary reports after each visit.

Objectives

This activity has the following objectives:

- To assess the status of clinical pharmacy service implementation in hospitals
- To identify challenges in the implementation of clinical pharmacy services
- To determine the outcomes of clinical pharmacy services
- To identify best practices to be scaled up in other health facilities
- To provide mentoring and supportive supervision in selected hospitals

Composition of team

- Pharmaceutical Fund and Supply Agency — Chairperson
- Regional Health Bureau — Member

- University Member
- USAID/SIAPS Secretary

I: Checklist of activities

1. One day is allocated for each hospital.

2. Preparation for the trip:

- USAID/SIAPS will prepare logistics and transportation plan and vehicles for each team and notifies the members where and when to meet prior to the visit.
- PFSA coordinates the communication and preparation of health facilities for the assessment.
    - The PFSA hub will communicate with the respective hospital about the date and time of visit.
    - Communications should be made with CEO and pharmacy head of the hospital.
    - The CEO and pharmacy head should make prior arrangements for discussion with physicians, nurses (PFSA hub makes sure that this is done).
    - The CEO and pharmacy head should also make preparations for the team to be involved in morning sessions and ward rounds (PFSA hub makes sure that this is done).
- Enough copies of assessment tool should be prepared by PFSA and USAID/SIAPS.
- Each member should have a note pad and pen.

3. Activities during the visit:

- Each member is available at the agreed time and place.
- The team travels to the respective hospital.
- The team meets with the CEO and CCO as well as head of pharmacy and explains the objectives of the visit and obtains permission to conduct the assessment/supportive supervision.
- The team starts work at the head of the pharmacy department in the presence of the CPS coordinator.
- The assessment checklist should guide the team to conduct detailed assessment (*see II*).
- Plan the day and agree how each activity can be best accomplished within the given time.
- Approach each respondent at the workplace and present the questions respectfully.
    - Talk with CEO, CCO/medical director, clinical/patient-oriented pharmacists/both graduated and trained and head of pharmacy as per the checklist.
- The assessment team will
    - Assess implementation status
    - Identify challenges and gaps
    - Observe and record best practices
    - Discuss, provide technical support, and plan interventions to address gaps, i.e., future areas of improvement
    - Conduct mentoring for patient-oriented pharmacists on
        - Prevention, recognition, and management of DTPs by conducting chart review and ward rounds (bedside)
        - Attend MDT round (if available during the visit)
        - Attend morning sessions and contribute to the discussion raised
        - Review records and reports and provide feedback on the proper recording, documentation, and reporting practices
- Every member of the assessment team is expected to take notes in addition to filling the questionnaire (checklist).

- At the end of the visit, a meeting should be organized at the CEO's office and feedback provided to CEO, medical director/CCO, clinical-oriented pharmacists, and head of pharmacy about
    - Strengths
    - Weaknesses
    - Areas that need management support
    - Improvement areas until next visit, etc.
- The team should meet at the end of each visit day and discuss major issues and prepare a report based on the following format. The team should also make sure that the questionnaire is completely filled.
- The summary report of all hospitals and filled questionnaire should be handled by PFSA/SIAPS and should be submitted to head office within the next 2 working days after the end of the visit.

Note:

1. All documentation formats should be checked for accuracy and completeness in accordance with the standard indicated in the standard operating procedures for the provision of CPS.

2. A standard CPS report should contain:

- how many patients got the CP service
- how many of these were documented
- in how many of these DTPs were found
- out of these DTPs how many were intervened
- from the interventions how many were accepted
- from the implemented interventions how was the therapy outcome

3. In an accurate report, the numbers should follow this logical order to be of use and valid.

- Number of interventions should not be greater than number of DTPs identified
- Number of acceptance should not be greater than number of interventions
- Number of outcomes should not be greater than number of interventions (outcomes rarely become equal to interventions)

The summary report by the team should be recorded and reported using the following format:

Assessment on the Status of Clinical Pharmacy Service (CPS) Implementation in Ethiopian Hospitals
Jointly organized by PFSA, RHBs, Universities and USAID/SIAPS

PFSA Branch: _____ Reporting Date:_____			
General Information			
Team composition	SN	Name of team members	Organization
	1		
	2		
	3		
	4		
	5		
Name of hospital			
Names of persons involved in the assessment/SS from hospital	SN	Name of contact persons	Responsibility in the hospital
	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
Date of activity			
Total financial expenditure of the team	Type of expense		Amount in birr
	Per diem including SIAPS staff and drivers		
	Fuel		
	Lodging		
	Others		
Detailed Activity Record			
Major activities performed	_ _ _		
Strengths			
Weaknesses			
Challenges			
Best practices that can be scaled up to other hospitals			

Areas that need management support	
Areas that need stakeholder and partner support	
Major action points/assignments for next visit	
Any challenge encountered by the team	
Report compiled by:	Name: _____ Signature: _____
Note: Report should be prepared and approved by the assessment/SS team members (sign against their names above) and report should be submitted to head office within the next 2 working days after the end of the visit. Copy of the report should be shared with respective Regional Health Bureau and university (SoP)	

II: Guide for completing the Questionnaire developed to assess the Implementation of Clinical Pharmacy Services in Ethiopia

The guide is developed to standardize the process and direct the supportive supervision/assessment team in conducting the assessment.

Completing the assessment questionnaire/checklist

The CPS checklist has five main sections:

1. Profile of the Hospital
2. Initiation of Clinical Pharmacy Service (CPS) and Workforce
3. Patient-Oriented Pharmacy Services
4. Outcomes and Acceptance of Clinical Pharmacy Services
5. Job Satisfaction, Opportunities, Challenges, and Recommendations

Part I: Profile of the Hospital

In this section, the first thing to be filled is the health facility's full information (name and address of the facility visited), including the level of the hospital and bed number of each ward with the supplying PFSA hub. Following this, position and address of key staff members contacted should be filled.

Part II: Initiation of CPS and Workforce

In this section, 10 questions focus on the initiation of the clinical pharmacy service in the hospital, the workforce currently working at the hospital, availability of job description, and activities involved other than ward-based service. The first two questions (Q 1&2) should be answered by the hospital management/CEO. The rest of the questions will be entertained by pharmacy head/clinical pharmacy coordinator as mentioned in each question in the checklist.

Note: New graduates are those who completed the five years program according to the new patient-oriented pharmacy curriculum (four years class based and one year ward attachment). The trained ones are those who got one-month clinical pharmacy training at universities.

Fully – indicates those pharmacists who follow ward patients on full-time basis with no other responsibility.

Part III: Patient-oriented pharmacy services

There are 14 questions that are expected to be filled under this section. Annual action plan for CPS, ward activities, documentation and reporting tool availabilities, monthly reports, and patient chart are going to be reviewed and filled in the checklist.

For Q 13 ask and state the number of patient-oriented pharmacists available at each ward in the space provided.

For Q 17, ask and review availability of each of the stated documentation and reporting tools and specify in the space provided if other forms are available in addition to the ones mentioned in the checklist.

For Q 21, 22 & 23, review monthly clinical pharmacy reports starting from beginning of the service provision.

For Q 24, use 3 patient treatment charts (select the charts randomly) from 2 different wards where patient-oriented pharmacists are assigned. Start filling the table by writing the name of the ward where you collect the charts, then write 1 if the patient medication profile form is available and attached to the chart, if not write 2. Do the same for the other rows for each of the charts taken.

Part IV: Outcomes and Acceptance of Clinical Pharmacy Services

In this section there are 4 questions in which each of them contain sub-questions. The importance of the service, contribution, impact, and acceptance of patient-oriented pharmacists will be assessed.

For Q 26 check if any written document is available (which can serve as an evidence) in addition to the information collected.

Part V: Satisfaction, Opportunities, Challenges, and Recommendations

This is the final section containing 10 questions. The level of satisfaction, the incentive package, the curriculum, challenges, limitations, suggestions, and comments will be addressed.

Finally, names of the supportive supervision team will be recorded and signed.

ANNEX 3. DISTRIBUTION OF HOSPITALS BY PFSA HUBS, APRIL 2015

PFSA branches	Number of hospitals	Percent
Adama	4	9.3
Addis Ababa	8	18.6
Bahirdar	3	7.0
Dessie	5	11.6
Diredawa	3	7.0
Gondar	1	2.3
Hawassa	5	11.6
Jimma	3	7.0
Mekelle	8	18.6
Negelle Borena	2	4.7
Nekemte	1	2.3
Total	43	100

ANNEX 4. LIST OF HOSPITALS

SN	Name of Hospital	Level of hospital	Region	Town	Telephone number
1.	Gandhi Hospital	Referral	Addis Ababa	Addis Ababa	115518185
2.	Amanuel Psychiatric Hospital	Referral	Addis Ababa	Addis Ababa	112757724
3.	ALERT Hospital	Referral	Addis Ababa	Addis Ababa	118698789
4.	Zewditu Hospital	Referral	Addis Ababa	Addis Ababa	115574486
5.	St. Peter TB Specialized Hospital	Referral	Addis Ababa	Addis Ababa	
6.	Debremarkos Hospital	Referral	Amhara	Debremarkos	587711250
7.	Debretabor Hospital	General	Amhara	Debretabor	584410286
8.	Felege Hiwot Hospital	Referral	Amhara	Felegehiwot	582264412
9.	Boru Meda Hospital	Primary	Amhara	Boru Meda	331190523
10.	Woldia Hospital	General	Amhara	Woldia	
11.	Hidar 11 Hospital	Primary	Amhara	Akesta	331140490
12.	Ataye Hospital	Primary	Amhara	Ataye	
13.	Dessie Hospital	Referral	Amhara	Dessie	331117695
14.	Gondar University Hospital	Referral	Amhara	Gondar	588129002
15.	Enat Hospital	Primary	Amhara	Alem Ketema	111320138
16.	Debrebirhan Hospital	Referral	Amhara	Debrebirhan	916811353
17.	Dilchora Hospital	General	Diredawa	Diredawa	
18.	Hiwot Fana Hospital	Referral	Harari	Harar	256660198
19.	Jugal Hospital	General	Harari	Harar	256660170
20.	Shashamane Hospital	Referral	Oromia	Shashemene	461180276
21.	Bule Hora Hospital	General	Oromia	Bule Hora	464430218
22.	Yabello Hospital	General	Oromia	Yabello	464460823
23.	Bishoftu Hospital	General	Oromia	Bishoftu	114338147
24.	Adama Hospital	Referral	Oromia	Adama	221112424
25.	Metu Hospital	Referral	Oromia	Metu	
26.	Bedelle Hospital	Primary	Oromia	Bedelle	
27.	Jima University Hospital	Referral	Oromia	Jimma	471118244
28.	Wonji Hospital	Primary	Oromia	Wonji	222200092
29.	Ambo Hospital	General	Oromia	Ambo	
30.	Nekemte Hospital	Referral	Oromia	Nekemte	576611261
31.	Robe Dedea Hospital	Primary	Oromia	Arsi Rob	224430911
32.	Dilla University Hospital	Referral	SNNPR	Dilla	463312679
33.	Hawassa Hospital	Referral	SNNPR	Hawassa	462208703
34.	Adare Hospital	General	SNNPR	Hawassa	462211661
35.	Butajira Hospital	General	SNNPR	Addis Ababa	461150098
36.	Adigrat Hospital	General	Tigray	Adigrat	344454856
37.	Adwa Hospital	General	Tigray	Adwa	
38.	Ayder Hospital	Referral	Tigray	Mekelle	
39.	Mekelle Hospital	General	Tigray	Mekelle	34407145
40.	Quiha Hospital	General	Tigray	Quiha	34420305
41.	St. Mary Hospital	General	Tigray	Axum	347751320
42.	Wukro Hospital	General	Tigray	Wukro	
43.	Suhul Hospital	General	Tigray	Shire	